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Docket 87428AJA  
Customer No. 01333

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of  
Joseph F. Bringley

DERIVATIZED NANOPARTICLE  
COMPRISING METAL-ION  
SEQUESTERANT

Serial No. 10/822,940

Filed 13 April 2004

Group Art Unit: 1773

Examiner: Hoa T. Le

I hereby certify that this correspondence was sent by  
facsimile transmission to the United States Patent and  
Trademark Office on the date set forth below.

*Valerie J. Richardson*  
Valerie J. Richardson  
*December 4, 2006*  
Date

Mail Stop APPEAL BRIEF-PATENTS  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA. 22313 1450

Sir:

**REPLY BRIEF PURSUANT TO 37 C.F.R. 1.193**

Applicants submit the following arguments in reply to the  
Examiner's Answer mailed October 2, 2006, and Supplemental Examiner's  
Answer mailed November 1, 2006.

**Arguments**

***The 35 U.S.C. 102(b) Rejection Over Ranney***

The Examiner's indication that this rejection has been withdrawn is  
acknowledged and appreciated.

***The 35 U.S.C. 103(a) Rejection over Ranney in view of DeVoe et al.***

In section (10) of the Examiner's Answer, the Examiner argues that  
the teaching of Ranney provides DeVoe with carrier of nanoscale while the  
teaching of DeVoe supplements Ranney with various highly effective metal  
chelators, especially iron chelators, and that therefore motivation of combining

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these two patents exists. The Examiner additionally now cites col. 3, lines 2-4 and col. 18, lines 17-22 of Ranney as a teaching that hydrophobic carriers are "equally favored" as hydrophilic carriers in Ranney.

Such arguments continue to ignore that the compositions of Ranney are specifically taught for utilization in the human body, that only organic carriers are disclosed for use therein (e.g., specifically described as purified dermatan sulfate (col. 15, 49-53), or other organic materials (col. 19, lines 45-54; col. 34, lines 43-55)), and that there is no teaching or suggestion in either reference that small particle inorganic carriers should be substituted for the described organic carriers. Col. 3, lines 2-4 of Ranney is not a teaching that hydrophobic carriers are "equally favored" for any particular application as the disclosed and described hydrophilic organic carriers hydrophilic carriers in Ranney, but rather only states in the background art section that amphoteric and hydrophobic carriers may be favored for certain therapeutic applications. Further, cited col. 18, lines 17-22 states that the invention encompasses novel agents comprising cationic or chemically basic, amphoteric or hydrophobic therapeutic agents ... in association with hydrophilic carriers, not the use of hydrophobic carriers as alleged by the Examiner. In any event, Ranney provides no teaching or explanation of any specific hydrophobic carriers, and certainly no teaching or suggestion to the use of inorganic carriers, and finally no teaching or suggestion of the use of inorganic carrier particles having a particle size of less than 200 nm as required by the present invention.

While DeVoe et al describes use of inorganic carriers as well as organic carriers for metal chelating compositions, such compositions of DeVoe et al are insoluble and used to remove metal from aqueous solutions such as water, not for use as carriers for therapeutic agents for use in the human body as taught by Ranney, and such carrier particles employed in such system need not have the present required particle size. Accordingly, the compositions and technology described in Ranney and DeVoe are very different from each other. As the compounds of DeVoe et al. are taught for use for an entirely different purpose

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than those of Ranney, there is no teaching or suggestion that they would be suitable for the use in the system of Ranney, and it accordingly would not be obvious to the artisan to substitute the insoluble inorganic carriers of DeVoe et al for the specified organic carriers of Ranney. To the contrary, to do so would defeat the purpose of Ranney of providing the actually specified organic carriers thereof to provide biocompatibility and water-solubility/dispersibility as part of a drug delivery system. The mere mention in the background art section of Ranney that amphoteric and hydrophobic carriers may be favored for certain therapeutic applications is not a teaching or suggestion to substitute the inorganic carriers of DeVoe for the organic carriers of Ranney. Even if such substitution were to be made, the present invention still would not be obtained, as there is further no teaching in Ranney to decrease the particle size of the inorganic carriers of DeVoe, but rather only an observation that the organic carriers of Ranney have a small particle size. Accordingly, a prima facie case of obviousness has still not been established, even in further consideration of the additional passages of Ranney now referenced by the Examiner.

Additionally with respect to Claims 3, 17-18, 26, 40, and 41, the Examiner's arguments at page 7, lines 12+ that Ranney's teaching of nanoparticles having a size of 25 nm would logically encompass inorganic nanoparticles having a size of 20 nm is not supported. As noted above, Ranney only discloses organic carrier nanoparticles, and notes that such organic particles may have a size of 25 nm. It is not understood how such organic particles "logically encompass" inorganic particles as claimed, especially as the disclosed organic particles of Ranney are specifically selected to provide biocompatibility with the human body.

Additionally with respect to Claims 4, 5, 27, and 28, the Examiner continues to argue that the claimed features are individually taught in either of Ranney or DeVoe. The Examiner has still failed to establish a prima facie case of

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obviousness, however, as no teaching or suggestion based on either of DeVoe or Ranney to employ inorganic nanoparticle carriers in accordance with the specific claimed invention has been identified, especially in view of the differences in the specific applications of the individual references as discussed above and in Appellants' Brief.

Additionally with respect to Claims 22-44, the Examiner's statement that articles comprising the nanoparticles are suggested by Ranney at col. 15, lines 7-48 is clearly not supported, as such cited section merely restates the possible components of the described compositions, or possible therapeutic applications thereof, rather than disclose or suggest an article comprising immobilized derivatized inorganic nanoparticles, wherein the nanoparticles have an average particle size of less than 200 nm. The Examiner has simply not identified any teaching in either of DeVoe or Ranney that discloses or suggests an article comprising such immobilized particles.

### Conclusion

For the above reasons, and those set forth in Appellants' Brief, Appellants respectfully request that the Board of Patent Appeals and Interferences reverse the rejections by the Examiner and mandate the allowance of Claims 1-44.

Respectfully submitted,



Attorney for Appellants  
Registration No. 33,564

Andrew J. Anderson/vjr  
Telephone: 585-722-5023  
Facsimile: 585-477-1148  
Enclosures

If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.